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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/485,267	01/23/2004	James Robert Murray	836.047	1718

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EXAMINER	
KANTAMNENI, SHOBHA	
ART UNIT	PAPER NUMBER
1617	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/485,267	MURRAY ET AL.	
	Examiner	Art Unit	
	Shobha Kantamneni	1617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *16 July 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *NONE* is/are allowed.

6)☒ Claim(s) *1-7* is/are rejected.

7)☒ Claim(s) *7* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-7 are pending.

Election/Restrictions

Applicant's election with traverse Group I, claim(s) 1 (in part), 2, 3, 4-7 (in part), drawn to a method of use of galantamine or a derivative thereof of formula I in the manufacture of a medicament, wherein X in formula I is O; and drawn to a method of combating attention deficit disorders comprising administering galantamine or a salt thereof or a derivative thereof of formula I, wherein X in formula I is O, in the reply filed on 07/16/2007 is acknowledged herein. Applicant argues that the two groups share a common skeleton. This argument has been considered, but not found persuasive because the compounds of formula I, when X is O are structurally different from the compounds when X is NR3. Because each of the compounds lack the same core structure, the compounds will have different properties such as binding affinities, solubilities, modes of operation etc. The grouped inventions are patentably distinct, a reference which would anticipate, or make obvious, any inventions from groups I-II would not necessarily obviate or anticipate, the inventions in any other group. Further, the search required for Group I is not required for Group II. Thus, the restriction requirement is deemed proper, and is therefore made FINAL.

Claims 1-7 are examined insofar as they read on the elected invention.

Specification

The disclosure is objected to because of the following informalities:

The abstract of the disclosure does not commence on a separate sheet in accordance with 37 CFR 1.52(b)(4). A new abstract of the disclosure is requested and must be presented on a separate sheet, apart from any other text.

Claim Objections

Claim 7 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim 7 cannot depend from any other multiple dependent claim. See MPEP § 608.01(n). Accordingly, the claim 7 is not been further treated on the merits.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 3-6 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

1) The recitation, "methylenedioxy derivatives" of compound of formula I in claim 1 render claims herein indefinite. The recitation, "methylenedioxy derivatives" of the compounds of formula I is not clearly defined in the specification. Hence, one of ordinary skill in the art could not ascertain and interpret the metes and bounds of the patent protection desired as to "methylenedioxy derivatives" of compounds of formula I herein, since one of ordinary skill in the art would clearly recognize that many widely

varying groups could possibly substituting the compounds herein would read on the "methylenedioxy derivatives" of the compounds of formula I.

Given the fact that any significant structural variation to a compound would be reasonably expected to alter its properties,.e.g., physical, chemical, physiological effects and functions. Thus, it is unclear and indefinite as to the "methylenedioxy derivatives" of compounds herein encompassed thereby.

2) The recitation, "R6 may be a moiety of formula I" in claim 1 is vague and indefinite. This recitation is not clearly defined in the specification, and it is not clear what compounds this term encompasses. One of ordinary skill in the art could not ascertain the metes and bounds as to the recitation, "R6 may be a moiety of formula I" because one of skill in the art would recognize that "moiety" can be a part of a molecule or a compound.

Claims 1-5 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 1-5 are rejected, as they provide the use of galantamine or a derivative thereof of formula I in the manufacture of a medicament for combating attention deficit disorders, but, since the claim does not set forth any steps involved in the method/process, it is unclear what method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 1-5 are rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd.* v. *Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

Claims 1-5 are examined as the method of use of galantamine or a derivative thereof of formula I for the treatment of attention deficit disorders, and the following rejections are made.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-2, 4-6 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a method of combating specific attention deficit disorder by employing a specific compound of formula I, galantamine does not reasonably provide enablement for a method of combating attention deficit disorders by employing any compound represented by formula I. The specification does not enable

any person skilled in the art to which it pertains, or with which it is most nearly connected, to use the invention commensurate in scope with these claims.

The instant specification fails to provide information that would allow the skilled artisan to fully practice the instant invention without undue experimentation. Attention is directed to *In re Wands*, 8 USPQ2d 1400 (CAFC 1988) at 1404 where the court set forth the eight factors to consider when assessing if a disclosure would have required undue experimentation. Citing *Ex parte Forman*, 230 USPQ 546 (BdApls 1986) at 547, the court recited eight factors:

(1) the nature of the invention; (2) the state of the prior art; (3) the relative skill of those in the art; (4) the predictability or unpredictability of the art; (5) the breadth of the claims; (6) the amount of direction or guidance presented; (7) the presence or absence of working examples; and (8) the quantity of experimentation necessary.

(1). The Nature of the Invention:

The rejected claims are drawn to an invention, which pertains to a method of combating attention deficit disorders, by the administration of a compound having the structures of formula I or formula II.

(2). Breadth of the Claims:

The complex nature of the subject matter of this invention is greatly exacerbated by the breadth of the claims. The claims encompass a method of combating attention deficit disorders by administering any compound having structures of formula I or formula II. The scope of the compounds claimed to be useful is extremely broad.

(3). Guidance of the Specification / (4). Working Examples:

All of the guidance provided by the specification regarding combating attention deficit disorder is directed to merely one compound, galantamine.

(5). State of the Art / (6) Predictability of the Art:

The relative skill of those in the art is high with respect to combating attention deficit disorder by administering specific compound.

The invention is directed to a method of combating attention deficit disorders by administering any compound having structures of formula I. It is well established that the **scope of enablement** varies inversely with the degree of unpredictability of the factors involved, and physiological activity is generally considered to be an unpredictable factor. See In re Fisher, 427 F.2d 833, 839 (1970). It is further noted that the pharmaceutical art is unpredictable, requiring each embodiment to be individually assessed for physiological activity. The pharmacokinetic profile of a compound is governed by its physiochemical properties. The compounds of the instant invention of formula I have different functional groups and result in different biological properties. More, polar compounds will have different properties such as different solubilities, binding abilities, different abilities to penetrate through cell membranes etc., then less polar compounds. For example, the compounds represented with the structure as in claim 1, formula I, will have different physiochemical properties. The compound of formula I, with R3 = CF3, will have different physical properties such as lipophilicity, binding abilities, solubilties, different ability to penetrate through cell membranes etc. than a compound with R3 = -OH, and thus will have different abilities to inhibit cholinesterase or may lack the ability to inhibit cholinesterase. Thus, in the instant case,

the claimed invention is highly unpredictable, one of skill in the art is unable to fully predict possible physiological activities of any compounds represented by formula I, in the claimed method of combating attention deficit disorder. Moreover, one of the skills in the art would recognize that it is highly unpredictable with regard to therapeutic effects of the compounds herein, side effects such as adverse drug-drug interactions, serious toxicity that may be generated due to accumulation of drug itself or one of its metabolites. Thus, the instant claimed invention is highly unpredictable.

(7). The Quantity of Experimentation Necessary:

In order to practice the claimed invention, one of ordinary skill in the art would have to first envision a specific compound of the instant invention for the treatment, a dosage for each compound, the duration of treatment, route of treatment etc. One would then need to test the compound in the model system to determine whether or not the compound is effective as a cholinesterase inhibitor. One would then also need to test the compound in the model system for side effects and toxicity at the site of pharmacological action and the therapeutic index of the drug. Thus a person of skill in the art would have to engage in undue experimentation to test these compounds encompassed in the instant claims to be administered to a host employed in the claimed methods of the particular treatments herein, with no assurance of success.

Genetech, 108 F.3d at 1366 states that "a patent is not a hunting license. It is not a reward for search, but compensation for its successful conclusion" and "patent protection is granted in return for an enabling disclosure of an invention, not for vague intimations of general ideas that may or may not be workable".

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-6 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Snorrason (WO 92/20328, PTO-1449), in view of Gliichi (EP-0607864, PTO-1449).

Snorrason discloses the employment of cholinesterase inhibitor, galantamine, for the preparation of a pharmaceutical composition for counteracting the sedative or hypnotic or respiratory depressive effects of benzodiazepines (claim 1) given for the treatment of diseases such as hyperactivity of children. See claims 1, 17, 21-22, 27, and 39; page 4, line 27). It is taught that cholinesterase inhibitors are employed in combination with benzodiazepines (page 5, §1) in the treatment of attention deficit disorder e.g. hyperactivity of children to alleviate the undesirable side effects of the benzodiazepines.

Snorrason does not explicitly teach the employment of galantamine in the method of treating hyperactivity in children.

Gliichi teaches that cholinesterase inhibitors can be employed in the treatment of attention deficit disorder, hyperkinesis. See page 71, lines 40-45.

It would have been obvious to a person of ordinary skill in the art at the time of invention to employ galantamine in the method of treating attention deficit disorder because 1) Gliichi teaches that acetylcholinesterase inhibitors are known to be used for treatment of attention deficit disorder, hyperkinesis, and 2) Snorrason teaches that galantamine is an acetylcholinesterase inhibitor. Accordingly, it would have been obvious to one of ordinary skill in the art to utilize the specific acetylcholinesterase inhibitor, galantamine for treating attention deficit disorder. One would have been motivated to utilize the specific acetylcholinesterase inhibitors because the combined references render the administration of an acetylcholinesterase inhibitor, in general, obvious. Accordingly, one would have had an expectation of similar success in treating attention deficit disorder by employing a specific acetylcholinesterase inhibitor, galantamine as instantly claimed.

Conclusion

No claims are allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Shobha Kantamneni whose telephone number is 571-272-2930. The examiner can normally be reached on Tuesday-Thursday, 8am-4pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sreeni Padmanabhan, Ph.D can be reached on 571-272-0629. The fax phone number for the organization where this application or proceeding is assigned is 571-272-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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Patent Examiner
Art Unit : 1617

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